

Development and formative evaluation of the “Educational Media In-service Teacher Training Curriculum Standards”

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ABSTRACT

The first Japanese “curriculum standards” for educational media/ICT in-service teacher training was announced by the Ministry of Education, Science and Culture in April 1973. Since then, the “curriculum standards” has been revised twice. The last revision was made in March 2006, based on the results of a preliminary study that was conducted by the Japan Audio-Visual Education Association from fiscal year 2002 to 2003. This article describes the background, process of the revision, and the features of the new “curriculum standards”. Moreover, the results of the formative evaluation of the “curriculum standards” are explained. The formative evaluation involved 33 teachers’ consultants and social education consultants who took part in the “Media Specialists Training Course” which was held by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) in October 2009. As a consequence, most of the subjects reported positive opinions about the new “curriculum standards”. Therefore, it is suggested that the new “curriculum standards” is necessary and useful to enhance teachers’ knowledge and skills, to promote effective use of educational media, to raise media specialists, and to help curriculum planners develop training programmes/courses.

Keywords: Curriculum development; in-service teacher training; ICT teacher training; formative evaluation; training approaches; educational media

BACKGROUND

Japan is now implementing a “New IT Reform Strategy” which was developed in January 2006 with the goal of promoting structural reforms and fulfilling its duties as a frontrunner that can lead global ICT innovation in the future (IT Strategic Headquarters for the Cabinet Office 2006). To meet the goal of the “New IT Reform Strategy”, the Japanese Government aims (1) to provide one computer to 3.6 students in schools, (2) to provide a computer to all the school teachers for school duties/affairs, (3) to raise the percentage of the schools connected to LANs to 100%, and (4) to make all the teachers ICT literate. However, the results of the “Countrywide Survey on the Situations of Informatisation of Japanese Schools” show that (1) students: computer ratio is 7.2:1 in schools, (2) computers are provided to only 61.6% of the school teachers, (3) only 64.0% of the schools are connected to LANs, and (4) not all of the teachers are ICT literate (MEXT 2009). Specifically, 72.6% of the teachers replied that they can use ICT for class preparation, class evaluation and educational research, 56.4% said they can utilise ICT in classroom lessons, 58.5% said they can foster students’ ICT literacy, 66.8% said they can cope with moral issues in ICT, and 67.0% said they can utilise ICT for school duties/affairs.

Enhancing media/ICT knowledge and skills for all and fostering media/ICT professionals/leaders is a crucial factor of the quality of media/ICT-based education. Therefore, efforts have been made to develop an effective and well structured media/ICT education teacher training curriculum standards, to promote in-service and pre-service teacher training at the local and national level, and to motivate teachers to take the training programmes/courses. One of the efforts made by the MEXT to enhance teachers’ media/ICT knowledge and skills is the development of the “Educational Media In-service Teacher Training Curriculum Standards” (hereinafter abbreviated

as “curriculum standards”). The “curriculum standards” has been introducing knowledge and skills required for teachers and educational officers, and has been a reference material for regional curriculum planners in developing regional training programmes/courses.

The first “curriculum standards” was named “Audiovisual Education In-service Teacher Training Curriculum Standards” and was issued in April 1973 (Social Education Bureau, Ministry of Education, Science and Culture 1973). The main objectives of the “curriculum standards” were to enhance in-service teachers’ knowledge and skills of utilising educational media, and to promote audiovisual education. The training courses were categorised by media with the knowledge and skills required for each medium and further divided into three levels: primary, intermediate and advanced. The primary level courses introduced basic knowledge and skills minimally required of all teachers and officers working in schools and social education facilities. The intermediate level courses were designed to cultivate human resources who can train teachers and officers at the primary level, and the advanced level courses were designed to develop media education leaders who were expected to train teachers and officers at the intermediate level. The primary level courses were conducted by cities’ and towns’ boards of education, the intermediate level courses were conducted by prefectural boards of education, and the advanced level courses were conducted by the Ministry of Education, Science and Culture.

In March 1992, following a variety of technological developments of educational media, the “curriculum standards” was revised and was introduced as the “Audiovisual/Media Education In-service Teacher Training Curriculum Standards” (Lifelong Learning Bureau, MEXT 1992). The “curriculum standards” incorporated new technologies such as computers, telecommunication systems and databases, and the structure of the “curriculum standards” was greatly changed. The new “curriculum standards” consisted of two curriculums: “Training Curriculum One” and “Training Curriculum Two” that had different goals. “Training Curriculum One” was designed to introduce all of the knowledge and skills required for educational media utilised in schools and social education facilities, and by doing so, develop educational practitioners. “Training Curriculum Two” aimed to foster media education leaders who were in charge of planning and managing training programmes/courses at the city or prefectural level. Moreover, regional disparities in media education were considered in the development of the new “curriculum standards”, and a so-called “menu system” was implemented (Nakano et al 2006). The “curriculum standards” simply introduced a list of 93 training courses and let the regional curriculum planners select which course to provide in their region, according to the region’s needs and situations. The process of referring to the “curriculum standards” and developing regional teacher training programmes/courses is similar to the process of choosing what to eat from a menu in a restaurant, and therefore, the system was named “menu system”. Thus, the “menu system” enables regional curriculum planners to develop unique regional training programmes/courses based on the “curriculum standards”.

However, since more than ten years have passed since the last “curriculum standards” was published, and since the situation of educational media has radically changed, Japan Audio-Visual Education Association (JAVEA) conducted a research in commission from the MEXT for the revision of the “curriculum standards” in fiscal year 2002 (JAVEA 2003).

PRELIMINARY STUDY FOR THE REVISION OF THE “CURRICULUM STANDARDS”

Preliminary study was carried out to identify the present situation and needs of in-service teacher training related to media/ICT education (JAVEA 2003). Preliminary study was composed of four phases: 1) preliminary interview, 2) preliminary questionnaire survey, 3) development of the new “curriculum standards (draft)”, and 4) heuristic evaluation of the new “curriculum standards (draft)”.

Results of the Preliminary Interview

A preliminary interview was conducted from October to November 2002. The purpose of the interview was to examine the present situation and needs of media/ICT education teacher training in order to draw up a questionnaire for an elaborate survey. Examinees were eight officers of regional boards of education who were responsible for designing and managing teacher training courses in each region. The main results of the interview were as follows (Yoshida et al 2006):

- There are high needs in some courses introduced in the “curriculum standards” (e.g. ICT in education), while there are relatively low needs in other courses (e.g. utilising overhead projectors in education).
- All of the examinees replied that a new “curriculum standards” is necessary.
- The “curriculum standards” is expected to be revised in a shorter span.
- The “menu system” which meets regional needs is considered an ideal system.
- It is hoped that training case studies or model training programmes/courses will be introduced in the new “curriculum standards”.
- Few institutes issue certificates for teachers who take part in the training courses.

Results of the preliminary interview indicate that a new “curriculum standards” is required by the educational institutes which deliver teacher training courses, and the new “curriculum standards” is expected to adopt the “menu system” which enables regional curriculum planners to design training programmes/courses that meet regional needs and situations. However, results revealed that the contents of the “curriculum standards” are required to be revised, and exemplars of the teacher training courses are expected to be introduced.

Based on the results of the preliminary interview, a questionnaire was developed with the aims of collecting a wide range of views on the development of a new “curriculum standards”.

Results of the Preliminary Questionnaire Survey

A preliminary questionnaire survey was conducted from December 2002 to January 2003. The purpose of the survey was to identify 1) current conditions of media/ICT education teacher training, 2) current and future needs of media/ICT education teacher training, and 3) needs and requests for the revision of the “curriculum standards” (Yoshida 2003; Yoshida et al 2006).

The questionnaire was mailed to 273 educational institutes: all of the prefectural and ordinance-designated cities’ educational centres, all of the prefectural and ordinance-designated cities’ lifelong learning centres, all of the prefectural and ordinance-designated cities’ audiovisual centres, and 120 municipal audiovisual libraries. A total of 161 valid replies were obtained for the questionnaire. The collection rate was 59.0%. Major results of the survey are shown in Table 1.

Results of the questions on the current conditions of media/ICT education teacher training show that teacher training courses on media/ICT education are currently delivered by most of the institutes. It is also obvious from the results of the survey that almost all of the educational institutes believe that in-service teacher training on media/ICT education is necessary and important in order to enhance teachers’ knowledge and skills, to utilise the institutes’ equipments and facilities, and to foster educational leaders and teacher trainers.

The questions on the current and future needs of media/ICT education teacher training identified that training contents with high needs are related with ICT and digital media, while training contents with low needs are related with analogue media. Results suggest that the training contents in the new “curriculum standards” should be drastically altered.

Results of the questions on the needs and requests for the revision of the "curriculum standards" show that most of the institutes approved that a new "curriculum standards" is necessary and significant. It was also revealed that the institutes supported the "menu system" and they seek for the introduction of model training courses.

Table 1: Major results of the preliminary questionnaire survey

Questions		n	%
Media/ICT education training is necessary:	Yes	154	98.7
	No	2	1.3
The institute/organisation delivers media/ICT education training courses:	Yes	136	85.0
	No	24	15.0
Purpose of the media/ICT education teacher training courses:			
1	to enhance teachers' knowledge and skills	122	76.3
2	to utilise the institutes' equipments and facilities	93	59.1
3	to foster educational leaders and teacher trainers	91	56.9
Enrolment of the media/ICT education training courses delivered by the institute:			
1	all of the courses reach the maximum enrolment	54	33.8
2	some of the courses are under-enrolled	51	31.9
3	most of the courses are under-enrolled	19	11.9
Training contents with high current needs:			
1	digital video production and non-linear editing	70	49.3
2	digital presentation	58	40.9
3	basic computer skills	46	32.4
Training contents with low needs:			
1	operating 16 mm movie projectors	71	53.4
2	operating overhead projectors	65	48.9
3	operating slide projectors	52	39.1
Training contents with high future needs:			
1	digital video production and non-linear editing	62	47.7
2	basic computer skills	35	27.0
3	video delivery via the Internet	34	26.2
A new "curriculum standards" is necessary:	Yes	141	95.3
	No	7	4.7
The "menu system" is usable:	Yes	147	94.8
	No	8	5.2
The categorisation of the new "curriculum standards" should be done:			
1	by the trainees' occupation	100	62.5
2	by the knowledge and skills to be acquired	92	57.5
3	by medium	59	36.9
Model training courses should be introduced in the new "curriculum standards":	Yes	144	95.4
	No	7	4.6
The new "curriculum standards" should be delivered:			
1	online (on the Web)	119	74.3
2	printed material	99	61.9
3	electronic media (CDs/DVDs)	52	32.5

In Japan, most of the public officers move off to another section in two or three years, so it must be difficult for regional curriculum planners to acquire knowledge and skills on curriculum development in such a short period. Therefore, it is required to develop and deliver a "curriculum standards" which serves as a reference material for regional curriculum planners in the development of regional training programmes/courses, and it is important to introduce model training courses which are expected to work as exemplars of teacher training courses.

Development of the New “Curriculum Standards (Draft)”

Following the results of the preliminary interview and survey, the new “curriculum standards (draft)” was developed in March 2004 (JAVEA 2004). At first, media/ICT education training curriculums and university syllabuses in the country and overseas were collected in order to develop and determine the training curriculum contents. Secondly, a working committee was formed, and the committee members listed up as many media/ICT education training contents as they could that were supposed to be required as basic and/or specialised knowledge and skills for teachers and educational officers who work in schools and social education facilities. At this point, 934 curriculum contents were proposed. However, it was much-anticipated that it would be inconvenient and confusing for the regional curriculum planners if the “curriculum standards” was introduced as a list of nearly one thousand contents, and the planners were to pick up contents that meet their community’s needs and develop a unique training programme/course. Therefore, committee members convened six times to screen the contents of the curriculum. As a result, a new “curriculum standards (draft)” consisted of 22 training courses with 66 training topics and 261 sub-topics was developed.

It was noted in the results of the preliminary questionnaire survey that the new “curriculum standards” is expected to be categorised by the trainees’ occupation. However, many training courses delivered by educational institutes are available for people from various jobs, and therefore, it was presumed that if the new “curriculum standards” is categorised by the trainees’ occupation, it would be difficult for the regional curriculum planners to develop training programmes/courses that meet the needs of each job.

Results of the questionnaire survey also noted that the new “curriculum standards” should be categorised by the knowledge and skills to be required by the expected trainees. In fact, the working committee tried to develop a “curriculum standards” based on the knowledge and skills to be required, but it was extremely difficult to categorise the training contents without referring to the type of media to be used. For example, presentations might be delivered by computer software or by visual presenters or maybe by digital blackboards, and knowledge and skills ought to be acquired differ greatly from medium to medium. For this reason, the working committee determined to categorise the training contents by medium.

Moreover, the importance of developing and introducing model training courses was pointed in the results of preliminary study, but as the training contents introduced in the new “curriculum standards (draft)” were tentative, it was determined not to develop model training courses at this stage. However, the working committee decided to conduct a heuristic evaluation of the new “curriculum standards (draft)”, and to develop model training courses on the basis of the results of the heuristic evaluation.

Heuristic Evaluation of the New “Curriculum Standards (Draft)”

A heuristic evaluation was carried out from October to November 2005 in order to verify the validity of the new “curriculum standards (draft)” (JAVEA 2006). The new “curriculum standards (draft)” was sent to 29 media education researchers and regional training curriculum planners together with a questionnaire. Subjects were requested to design a “virtual” teacher training programme using the “curriculum standards (draft)”, and then, answer to the questionnaire. In the questionnaire survey, 1) needs of the “curriculum standards”, 2) comments on the “menu system”, 3) needs for role sharing between national and local governments, 4) needs for the introduction of model training programmes/courses, 5) validity of the contents of the “curriculum standards (draft)” were investigated. The results of the heuristic evaluation were (Yoshida et al 2006):

- All subjects replied that a “curriculum standards” that is organised by an official government is necessary.
- All subjects supported the “menu system” that meets the needs and situations of the regions.
- No subject commented that compulsory training courses should be introduced in the “curriculum standards”.
- More than 70% of the respondents replied that model training programmes/courses should be introduced in the “curriculum standards”.
- One third of the subjects said that role sharing between national and local governments is necessary.
- All subjects said that the “curriculum standards” should be revised and/or updated perpetually.
- Nearly 70% of the subjects expected the new “curriculum standards” to be delivered via the Internet, while 55% suggested the “curriculum standards” to be delivered in printed material.
- Some training contents related to the utilisation of ICT in education were suggested to be added to the “curriculum standards”.
- Some contents related to the operation of audiovisual aids and audiovisual materials were suggested to be taken off of the “curriculum standards”.

Given the findings of the heuristic evaluation, the working committee decided to add 69 training contents to the new “curriculum standards”. The newly added contents were related to the utilisation of videoconference, utilisation of handheld terminals, utilisation of groupware, and utilisation of CATV. On the other hand, 13 training contents were eliminated from the new “curriculum standards” or integrated with another training content. The contents that were eliminated were related to the operation and connection of television sets. The contents that were integrated were related to the utilisation of audiovisual aids and audiovisual materials. Some of the subjects who participated in the heuristic evaluation commented that training contents on audiovisual aids and materials such as utilising 16 mm movie projectors should be taken off of the “curriculum standards”. However, since the new “curriculum standards” adopted the “menu system” which enables curriculum planners to select appropriate contents from a list of conceivable contents, and it was known that many educational institutes have been offering training courses on the operation of 16 mm movie projectors, the working committee decided to leave the contents on the new “curriculum standards” and let the regional curriculum planners determine whether to include the training contents in their training programmes/courses or not.

According to the results of the heuristic evaluation, the working committee decided to develop model training courses and introduce them in the new “curriculum standards”. The results of the preliminary questionnaire survey showed that teacher training courses are expected to be classified by the subjects’ or the trainees’ occupation, and/or the course objectives or knowledge and skills to be acquired. As a result, subject-based model training courses and objective-based training courses were decided to be developed.

The working committee discussed the division of the roles between the national and local governments. For two reasons, they decided not to define the roles of the national and local governments. Firstly, it was known that the situations of media/ICT education teacher training vary widely from region to region, and hence, it was difficult to determine what the local governments should do and what they should not do. Secondly, defining the roles and the courses to be offered leads to the fixation or compulsion of the training courses. Therefore, the role sharing between the national and local governments is not definitely determined in the new “curriculum standards”. Instead, the roles of the cities’ and towns’ boards of education, the prefectural boards of education, and the MEXT are proposed in the “model training courses” which are described later.

Furthermore, the working committee discussed the delivery mode of the new “curriculum standards”. In consequence, the committee decided to deliver the new “curriculum standards” not only in printed material but also online.

DEVELOPMENT OF THE NEW “CURRICULUM STANDARDS”

Based on the findings of the preliminary study, the “Educational Media In-service Teacher Training Curriculum Standards” was developed in March 2006, and was announced by the MEXT on November 24th, 2006 (Lifelong Learning Policy Bureau, MEXT 2006). The new “curriculum standards” involves four categories: training courses, training topics, training sub-topics, and training contents. If a training course introduced in the “curriculum standards” can be compared to a learning subject, a training topic can be compared to a study unit, a training sub-topic is a lesson, and a training content is a learning activity. The relationship of the training courses, topics, sub-topics, and contents can be described as follows:

- Training Course: the Internet
 - Training Topic: Utilising the Internet in Education
 - Operating the Internet
 - Operating Communication Tools
 - Training Sub-topic: Using Web-based E-mail
 - Using Electronic Bulletin Board Systems
 - Blogging
 - Training Content: Functions and Roles of Blogs
 - Setting up Blogs
 - Managing Blogs

The new “curriculum standards” consists of 22 training courses with 74 training topics, 317 sub-topics and 1,065 training contents. The reason why more than 300 sub-topics and 1,000 training contents were established was to enable constant revision of the “curriculum standards” so as to deal with the rapid development of ICT and educational media, and to expand the range of options for regional training curriculum planners.

Major Revisions of the “Curriculum Standards”

Major revisions of the “curriculum standards” were (Yoshida 2007):

- The “curriculum standards” changed its name from “Audiovisual/Media Education In-service Teacher Training Curriculum Standards” to “Educational Media In-service Teacher Training Curriculum Standards”.
- There are no compulsory training courses/contents in the new “curriculum standards”. All of the contents introduced in the new “curriculum standards” are selective.
- The “menu system” is adopted in the new “curriculum standards”. The “menu system” enables curriculum planners to freely choose training contents from a list of 1,065 training contents and make up a training programme/course that meets regional needs.
- The structure of the “curriculum standards” is radically changed. The former “curriculum standards” was divided into two categories, while the new “curriculum standards” is divided

into four categories: training courses, training topics, training sub-topics, and training contents.

- The training contents of the “curriculum standards” are drastically changed to accompany with the advance of educational media.
- In order to cope with the trends and prospects of media/ICT education, training sub-topics termed “The Current Situation and Issues of Utilising XXX in Education” are provided under each training topic.
- The new “curriculum standards” was decided to be delivered online and in printed material.

Main Features of the New “Curriculum Standards”

The new “curriculum standards” has four main features that are described in the following sections.

Adoption of the “Menu System”

In the process of developing the new “curriculum standards”, the extent of compulsory courses and/or core courses came to an issue. According to the preliminary study, it became obvious that conditions of in-service teacher training and audiovisual aids possessed by educational facilities vary widely by region. Therefore, the “menu system” which is a form of a module system was adopted in the new “curriculum standards”. This system leads the regional curriculum planners to design training programmes/courses that matches the conditions and needs of each region.

Presentation of Three Formats of “Curriculum Standards”

Since the new “curriculum standards” consists of more than one thousand training contents, three formats of “curriculum standards” were presented (Nakano et al 2007). The first curriculum is known as the “Educational Media In-service Teacher Training Curriculum Standards” and involves two categories: training courses and training topics. The first “curriculum standards” is mainly for regional curriculum planners who are experienced. By use of the first “curriculum standards”, regional curriculum planners can get a general idea of developing a regional training programme/course. The contents of the first “curriculum standards” are shown in Tables 2, 3 and 4.

The second “curriculum standards” was named the “List of Training Courses, Topics, and Sub-topics”, and involves three categories: training courses, training topics, and training sub-topics. The third “curriculum standards” is called the “Reference List for Educational Media In-Service Teacher Training” and involves all four categories. The second and third “curriculum standards” are primarily for regional curriculum planners with less experience. By using the second and third “curriculum standards”, regional curriculum planners can get a whole picture of the knowledge and skills required for teachers and officers working in schools and social education facilities. Experienced curriculum planners can use the second and third “curriculum standards” to determine the contents of the regional training programmes/courses, or they can create and determine the contents by themselves. In this way, it is expected that the three “curriculum standards” will be used flexibly depending on the stage of curriculum development, regional curriculum planners’ experience and knowledge, and the conditions of the regional area.

Table 2: The “Educational Media In-service Teacher Training Curriculum Standards” (1): training courses and topics on basic theories and skills of media education (originally from JAVEA 2006, pp. 30-31, translated by the author)

Training Courses	Training Topics
1. General Theories of Educational Media	1. Trends and Issues of Educational Media 2. Utilising Educational Media 3. Managing and Operating Educational Media 4. Media Literacy
2. Detailed Theories of Educational Media	5. Utilising Media in Education
3. Educational Broadcasting	6. Utilising Educational Broadcasting 7. Trends in Educational Broadcasting 8. Video and TV Programme Production
4. School PA Systems	9. Utilising School PA Systems 10. Installing and Operating School PA Systems
5. Audiovisual Aids	11. Utilising 16 mm Movie Projectors 12. Utilising Slide Projectors 13. Utilising Overhead Projectors 14. Utilising Visual Presenters and Overhead Cameras 15. Utilising DVD Recorders and/or HDD Recorders 16. Utilising Large-screen LCD TVs and/or PDP TVs 17. Producing Slides and Projection Materials 18. Utilising Slides and Projection Materials 19. Producing and Utilising Still Images
6. Audiovisual Materials	20. Producing Video Materials 21. Operating Digital Cameras 22. Utilising Printers
7. Recording Materials	23. Producing Sound Recording Materials 24. Producing Video Recording Materials 25. Producing and Utilising DVDs and CDs 26. Utilising Sound Recording Materials 27. Utilising Video Recording Materials 28. Utilising VOD Systems

Table 3: The “Educational Media In-service Teacher Training Curriculum Standards” (2): training courses and topics related with the utilisation of ICT in education (originally from JAVEA 2006, pp. 30-31, translated by the author)

Training Courses	Training Topics
8. General Theories of Computers	29. Overview of Computer Aided Education 30. Computer Hardware 31. Computer Software 32. Basic Computer Skills
9. Word-processing Software	33. Utilising Word-processing Software in Education 34. Operating Word-processing Software
10. Spreadsheet Software	35. Utilising Spreadsheet Software in Education 36. Operating Spreadsheet Software
11. Digital Presentation	37. Utilising Presentation Software in Education 38. Operating Presentation Software
12. Database Software	39. Utilising Database Software in Education 40. Operating Database Software
13. Hypermedia/Multimedia	41. Utilising Hypermedia/Multimedia in Education 42. Developing Hypermedia/Multimedia
14. Computer Networks	43. Utilising Computer Networks in Education 44. Operating Computer Networks 45. Managing Computer Networks
15. The Internet	46. Utilising the Internet in Education 47. Operating the Internet 48. Operating Communication Tools
16. E-mail	49. Utilising E-mail in Education 50. Operating E-mail Programmes
17. Websites	51. Utilising Websites in Education 52. Operating Websites
18. Educational Software	53. Utilising Educational Software 54. Utilising Groupware in Education 55. Moral Issues and Netiquette 56. Copyright Issues
19. Moral Issues, Copyright Issues, Network Security	57. Protection of Personal Information 58. Network Security 59. Rating and Filtering Information 60. Protection from Hazardous and Harmful Websites

Table 4: The “Educational Media In-service Teacher Training Curriculum Standards” (3): training courses and topics recommended for regional media/ICT leaders (originally from JAVEA 2006, pp. 30-31, translated by the author)

Training Courses	Training Topics
20. Distance Education	61. Utilising Videoconference 62. Utilising E-Learning (WBL) 63. Utilising the el-Net 64. Utilising Electronic Whiteboards 65. Utilising GPSs, Navigation Systems 66. Utilising Handheld Terminals 67. Meanings and Management of Audiovisual Centres/Libraries 68. Managing and Operating Media in Schools 69. Utilising CATV
21. Regional Media Planning and Media Centres	70. The Structure of the “Educational Media In-service Teacher Training Curriculum Standards” 71. Creating Training Manuals 72. Problems in Organising Training Courses 73. Establishing Regional Cooperation Systems 74. Evaluating Training Courses
22. Training Courses for Teacher Trainers	

Introduction of the “Matrices for the Model Training Courses”

In order to provide reference information to the regional curriculum planners and to improve the usefulness of the “curriculum standards”, 14 “matrices for the model training courses” were developed (JAVEA 2006). The topics of the matrices were determined by the regional curriculum planners’ current needs that were identified in the preliminary study. The 14 topics of the matrices introduced in the “curriculum standards” were:

- *Introduction to Educational Media*
- *Special Topics in Educational Media*
- *Curriculum Development*
- *Moral Issues and Copyright Issues in ICT*
- *Network Security*
- *Basic Computer Skills*
- *Computer-Aided Teaching and Learning*
- *Using the Internet and E-mail*
- *Digital Presentation*
- *Website Production and Management*
- *Digital Video Production and Non-linear Editing*
- *Networking and Computer-supported Collaborative Learning*
- *Utilising Digital TV in Education*
- *Hypermedia Production*

Table 5 is an example of a matrix introduced in the “curriculum standards”. The matrix shows what training content is necessary or desirable for whom. The rows of the matrix correspond to the learning contents described at the level of “training topics”. The columns correspond to the expected trainees. Each cell in the matrix describes whether or not a specific training topic is necessary or desirable for the expected trainees. However, the matrices are merely reference materials for the development of regional training programmes/courses, so the actual contents must be determined at the regional curriculum planners’ discretion.

Table 5: Example of a “matrices for the model training courses”: Utilising Digital TV in education (originally from JAVEA 2006, p.50, translated by the author)

Training Topics	School Teachers	School Principles	Teachers' Consultants	Educational Officers	Citizens
Utilising Educational Broadcasting	□□	□	□□	□	
Trends in Educational Broadcasting	□□	□	□□	□	
Video and TV Programme Production	□	□			
Utilising DVD Recorders and/or HDD Recorders	□□	□	□		
Utilising Large-screen LCD TVs and/or PDP TVs	□□	□	□		
Copyright Issues	□	□			
Utilising the Internet in Education	□	□			
Operating the Internet	□	□			

□□ - Strongly Recommended, □ - Recommended

Introduction of the “Model Training Courses”

As a reference material for curriculum development, 37 “subject-based model training courses” and 19 “objective-based model training courses” were introduced in the new “curriculum standards”. These “model training courses” aim to be a guideline for the regional curriculum planners in designing and developing media/ICT teacher training programmes/courses. In other words, the “model training courses” are sort of “teacher training course exemplars” or “recommended training course courses”. Table 6 is an example of a “subject-based model training course”, and Table 7 is an example of an “objective-based model training course” introduced in the “curriculum standards”.

Table 6: Example of a “subject-based model training course” (originally from JAVEA 2006, p.64, translated by the author)

Course: Designing Teacher Training Programmes/Courses for Social Education (Prefectural Level) Subjects: teacher training curriculum planners, social education consultants, community centre leaders Course Objective: Curriculum planners of social education facilities and audiovisual education facilities will be able to design educational media teacher training programmes/courses. Duration: 7 hours (1 day) Course Contents:		
Training Courses	Training Topics/Sub-topics	Duration
General Theories of Educational Media	Trends and Issues of Educational Media Trends and Issues in Media Education Utilising Educational Media Utilising Educational Media in Classroom Theories of Instructional Material Design	1 hour
Training Courses for Teacher Trainers	The Structure of the “Educational Media In-service Teacher Training Curriculum Standards” Current Situations and Issues of Teacher Training in Educational Media Meaning and Contents of Teacher Training in Educational Media Creating Training Manuals Creating Instruction Manuals for Teacher Training Courses	3 hours
Regional Media Planning and Media Centres	Problems in Organising Training Courses Designing and Managing Educational Media Teacher Training Courses Methods of Educational Media Teacher Training Establishing Regional Cooperation Systems Current Situation and Issues of Regional Education Support Systems Establishing Media Education Cooperation Systems in Collaboration with Regional Study Groups and Volunteer Groups Meanings and Management of Audiovisual Centres/Libraries Roles, Functions, Situation and Issues of Audiovisual Centres/Libraries Formulation of Regional Media Plans	1.5 hours
Moral Issues, Copyright Issues, Network Security	Copyright Issues Meanings and Contents of the Copyright Law Copyright Protection, Access Control Protection of Personal Information Preventing Personal Information Leakage Protection from Hazardous and Harmful Websites Trends and Issues in Hazardous and Harmful Websites Detecting and Blocking Hazardous and Harmful Websites	1.5 hours

Table 7: Example of an “objective-based model training course” (originally from JAVEA 2006, p.90, translated by the author)

Course: Internet Safety Course Objective: Acquire knowledge and skills to promote safety on the Internet Aim of the Course: With the growth of Internet usage, new issues such as e-mail related problems, personal information leakage, and security issues have emerged. In this training course, participants will acquire knowledge and skills to promote and maintain safety on the Internet, and ways to deal with Internet-related issues. Duration: 12 hours (2 days) Course Contents:		
Training Course	Training Topics/Subtopics	Duration
Moral Issues, Copyright Issues, Network Security	Moral Issues and Netiquette Meaning and Contents of Moral Issues Netiquette (Websites, BBSs, and E-mails) Rules and Moral Principles in the Network Society Communication Manners (Manners and Rules for Chatting and Using E-	4 hours
	Protection of Personal Information Preventing Personal Information Leakage	2 hours
	Network Security Types and Features of Computer Viruses, Worms, and Trojan Horses Protection from Computer Viruses, Worms, and Trojan Horses Types and Features of Spywares, Adwares, and Keyloggers Protection from Spyware, Adware, and Keylogger Network Security Vulnerability Assessment Types, Features and Functions of Firewalls Utilisation of Firewalls Blocking Unwanted Junk/Spam Mail	4 hours
	Protection from Hazardous and/or Harmful Websites Trends and Issues in Hazardous and/or Harmful Websites Detecting and Blocking Hazardous and/or Harmful Websites	2 hours

FORMATIVE EVALUATION OF THE NEW “CURRICULUM STANDARDS”

With the aim of illustrating the usability and the content validity of the new “curriculum standards”, formative evaluation was conducted on October 1st, 2009. Subjects were 33 teachers’ consultants and social education consultants who took part in the “Media Specialists Training Course” which was held by the MEXT. The subjects first got lectured on theories and methods of curriculum design for media/ICT education teacher training, and were lectured about the structure and how to use the new “curriculum standards”. Then, trainees chose one or more from the three topics that were presented to them, and designed educational media/ICT teacher training courses using the new “curriculum standards”. After that, subjects presented the training courses which they designed and then, answered a questionnaire. In the questionnaire, 1) usability of the new “curriculum standards”, 2) content validity of the new “curriculum standards”, 3) usability of the “model training courses”, and 4) needs for a manual/guideline of the “curriculum standards” were investigated. The procedure of the study was as follows:

- Lecture on curriculum design for media/ICT education teacher training (50 minutes)
- Lecture on the structure and use of the new “curriculum standards” (40 minutes)
- Designing educational media/ICT education teacher training courses using the new “curriculum standards” (60 minutes)
 - Topic 1: *Moral Issues in Education*
 - Topic 2: *Digital Video Production and Non-linear Editing*

- Topic 3: *Basic Computer Skills*
- Presentation of the teacher training courses designed by the participants (20 minutes)
- Questionnaire on the formative evaluation of the new “curriculum standards” (15 minutes)

Results of the Formative Evaluation

Seventeen out of thirty-three subjects designed two media/ICT education teacher training courses, while all the other subjects designed one course. That is to say that all of the subjects were able to design a teacher training course utilising the new “curriculum standards”. It is particularly worth noting that there were six subjects who commented that they had designed a training programme/course for the first time. Further results of the formative evaluation of the new “curriculum standards” are described below.

Usability of the New “Curriculum Standards”

All of the subjects commented that the new “curriculum standards” is usable in some way. The comments fell into three groups. The first group relates to the structure of the “curriculum standards”. Subjects replied that the structure of the “curriculum standards” is easy to understand as it is provided in three formats. The second group is about the contents of the “curriculum standards”. Subjects commented that the “curriculum standards” is a good reference material for developing regional training programmes/courses, since it consisted of 1,065 training contents and covers all of the knowledge and skills required for teachers and educational officers. The third group focused on the very existence of the “curriculum standards”.

The following is a summary of the subjects’ comments on the usability of the new “curriculum standards”.

- The “curriculum standards” is usable for developing training programmes/courses: 27.3%
- The “curriculum standards” is well-organised and easy to understand: 27.3%
- The “curriculum standards” is detailed and well-considered: 24.2%
- The “curriculum standards” is a good reference material: 21.2%

Usability of the “Menu System”

The subjects were asked if the “menu system” applied in the “curriculum standards” is useful or not, and 78.8% of the subjects replied that the “menu system” is useful. Most of the subjects realised that the “menu system” is a usable, understandable, and reasonable way for developing training programmes/courses. As noted above, six subjects designed a training course first time ever. It must be difficult for and inexperienced regional curriculum planner to select and determine appropriate training contents, but in fact, all of the six subjects could design a teacher training course using the new “curriculum standards”. Consequently, it can be assumed that the “menu system” adopted in the “curriculum standards” is usable and understandable even for inexperienced curriculum planners. The breakdown of the responses was:

- The “menu system” is a usable and reasonable system for developing training programmes/courses: 33.3%
- The “menu system” meets the trainees’ needs and situations: 18.2%
- The “menu system” is usable if the “curriculum standards” is used together with the “model training courses”: 15.2%

- The “menu system” is usable if a training course for designing training programmes/courses using the new “curriculum standards” such as the “Media Specialists Training Course” is provided by the national government: 12.1%

Content Validity of the New “Curriculum Standards”

The content validity of the “curriculum standards” was examined, and 75.0% of the respondents commented that part of the new “curriculum standards” should be revised. No subjects replied that the contents of the “curriculum standards” are invalid or insufficient. On the other hand, 18.8% of the subjects commented that all of the contents of the “curriculum standards” are valid and sufficient, and do not have to be altered.

The training contents that were reported to be altered were:

- Moral issues in education (to be extended): 25.0%
- Using ICT for school affairs (to be extended): 12.5%
- Using mobile phones in education (to be extended): 12.5%
- Using slide projectors in education (to be removed): 6.3%
- Using 16 mm movie projectors (to be removed): 6.3%
- Using digital television in education (to be extended): 6.3%
- Using educational media in classrooms (to be extended): 6.3%

Rationale for the apparent high need for revision of the training contents related with moral issues is because the need of fostering information moral was announced in the new course of study for the first time (MEXT 2008a; 2008b).

Usability of the “Model Training Courses”

The subjects were asked if the “model training courses” are usable, and 92.6% of the subjects replied that the “model training courses” are usable in a sense. Meanwhile, 7.4% desired the “model training courses” to be digitalised and linked with the new “curriculum standards”. The breakdown of the responses was:

- The “model training courses” are understandable and usable: 51.9%
- The “model training courses” are useful reference for designing regional teacher training programmes/courses: 40.7%
- The “model training courses” are expected to be digitalised: 7.4%

Needs for a Manual/guideline of the “Curriculum Standards”

Needs for a manual/guideline of the “curriculum standards” was examined, and 55.6% of the subjects said that a manual or a guideline of the new “curriculum standards” is necessary. On the other hand, 22.2% replied that the new “curriculum standards” is fully understandable so a manual is not necessary. Moreover, 18.5% replied that a training course or a lecture on the utilisation of the “curriculum standards” is necessary.

DISCUSSIONS AND FUTURE DIRECTIONS

All of the subjects who participated in the “Media Specialists Training Course” and the formative evaluation phase were lectured about the new “curriculum standards”, and developed training courses using the new “curriculum standards”. That is, all of the subjects tested the usability of the new “curriculum standards”. As a result, most of the subjects reported positive opinions about the new “curriculum standards”. Consequently, it is suggested that the new “curriculum standards” is necessary to enhance teachers’ knowledge and skills, to promote effective use of educational media in schools and educational facilities, to raise regional media specialists, and to help regional curriculum planners develop training programmes/courses. However, even if the new “curriculum standards” is elaborate and meets the needs of teacher trainees, it makes little sense if it is not used by the regional curriculum planners. Therefore, it seems crucial that the MEXT must make effort to keep regional curriculum planners informed about the new “curriculum standards”, to develop a manual/guideline that facilitates the use of the “curriculum standards”, and to keep providing training courses where regional curriculum planners can learn how to design and develop training programmes/courses using the new “curriculum standards”.

The “menu system” which is adopted in the new “curriculum standards” is recognised as a system that improves efficiency of developing regional training programmes/courses, meets the teachers’ and communities’ needs, enables regional curriculum planners to act at their own discretion and improves their motivation. It was revealed that the “menu system” is useful not only for the teacher trainees but also for the regional curriculum planners. The flexibility of the “curriculum standards” enables regional curriculum planners to study and design training contents that are necessary for the expected trainees and the community. It must be difficult for inflexible curriculums to focus on teacher trainees’ knowledge, skills and needs, and to keep pace with the rapid technological changes. As a result, contents of inflexible curriculums will become obsolete in a very short term. It can be said that the “menu system” adopted in the new “curriculum standards” is a method that meets the demands of the age.

The results of the formative evaluation revealed that some contents of the new “curriculum standards” are expected to be revised. It is unlikely that the contents of the “curriculum standards” have to be altered at the level of “training courses” or “training topics” in a short period. However, “training sub-topics” and “training contents” should be revised in a short span of time to cope with the rapid development of educational media. In fact, one training course, 10 training topics and 69 training sub-topics of the “curriculum standards (draft)” were added or revised when the new “curriculum standards” was announced. There is an urgent need to establish a system that enables perpetual revision and/or update of the “curriculum standards”.

Along with the minor change of the “curriculum standards”, new “model training courses” that suit the present conditions of educational media must be developed. This work might be undertaken by a working group or a study group established by the MEXT, but regional education facilities might also develop new “model training courses” and share them with other regions and facilities. It is expected that many “model training courses” are proposed by various educational facilities and shared via the Internet, and thus contribute to the development of the local communities.

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